

BAA08-36 ULTRA-Vis FAQ
(note: Questions 1-25 are from the Industry Day)

1. Q: Will the briefing be available for public access?

A: Yes. It will be available at http://www.darpa.mil/ipto/solicit/solicit_open.asp under the ULTRA-Vis BAA (08-36).

2. Q: Would any part of AFRL be able to join a team?

A: Possibly, but generally there are restrictions to the government competing with private industry for government requirements. A government entity has to be able to cite the specific authority which allows them to compete (as a prime of a sub) for government efforts and that documentation will need to be provided as part of your proposal.

3. Q: Will proposals that satisfy one key enabling technology, for example see through color displays, be considered for an award?

A: The BAA specifically requires an overall system approach to satisfy the requirements of the solicitation.

4. Q: Please describe the seedlings that led to ULTRA-Vis?

A: We had three seedlings over the last two years. One seedling was with BAE Systems in Rochester, UK for wave guide optics technology for helmet visor display. Another seedling was with Hughes Research Lab, HRL in Malibu, CA for information analysis using cognitive models for techniques for processing information and addressing the multi mode interface. Raytheon was involved with the HRL seedling. Finally, there was a seedling to do a system level analysis of the processing power, constraints, networking of a system for small unit operations with ARA (Applied Research Associates) in Alexandria, VA.

5. Q: What do you anticipate will be the duration for each of the three phases?

A: Offerors should determine what it will take to achieve the ULTRA-Vis gate metrics for each phase and propose the appropriate duration to meet those goals.

6. Q: Where do you stand on the use of COTS vs. military hardware?

A: We welcome your ideas and your proposal for either or both. Ultimately the system needs to be in a military package.

7. Q: Cost Share: is that a positive or a negative?

A: It depends on how you would address that in your proposal. We're not discouraging cost share.

8. Q: Do you see a new helmet design to house the components in the processor?

A: It needs to be head-mounted somehow, but not necessarily helmet-mounted. Either approach is possible. You tell us. We welcome your response to whether it's a new helmet, an existing helmet, or not helmet-mounted.

9. Q: If so, is the helmet ballistic?

A: To follow up on that, ultimately the ULTRA-Vis system must be compatible with and integrated with a ballistic helmet.

10. Q: Will you inform us or define an experimental scenario to test gate metrics? For example, head turning, op tempo, ambient context, lighting or acoustics.

A: Keep in mind that this ultimately is for a dismount in an urban environment which is a very difficult environment in terms of lighting and noise. Again, we look forward to your proposal on how to address that. At each Gate review meeting or exceeding the metrics are important criteria, but for each Gate you will need to say I met these gates and here's how it was done. That is the ultimate test at each phase of the program.

11. Q: Will the system "weight" be measured by including existing components, for example, helmet, microphone, etc?

A: The weight will include the new ULTRA-Vis components not existing equipment that's already on the soldier, for instance, battery, transmitter, if those are necessary. We're talking about the additional equipment that ULTRA-Vis adds to the soldier. If existing soldier equipment is used, that is not included in the system weight.

12. Q: What is the desired run time of Phase 3 system prototypes?

A: We are still evolving that through the CONOPS as we deal with our services. We are still looking at that in cooperation with transition partners to define those missions. Nominally, we anticipate a one day mission, but that, again, is something that will evolve. Certainly something like one hour is undesirable. We need it to handle an urban mission for a tactical unit. We welcome your analysis of that of the run time on this

13. Q: The BAA references existing soldier radios, any type in particular?

A: Further thought on that for instance, JTRS, SINCGARS, EPLRS, or any radio in field use. Again we leave that up to you. We recognize there are number of radios that are fielded or will be fielded or in some stage of development and evaluation by the services so that we don't have a preference. We welcome your analysis on that. Each radio that we've been involved in has its own pluses and minuses.

14. Q: Do the geo-registration requirements apply to both the commander and every squad member?

A: The icon geo-registration accuracy is a system level requirement. For example, squad leader accuracy within 4 mrad, and fire team leader within 5 mrad, that leads to a compounded icon placement uncertainty that must be within 10 mrad. It's a system level requirement. So the accuracy stated for the Gate metrics should be considered as the accumulative error that grows with each transfer of information.

15. Q: Does the 0.1 meter range accuracy mean global positioning accuracy?

A: Again, it's a system level accuracy. Your proposal should indicate how you will achieve that level of accuracy for the range. It certainly could and would likely involve GPS accuracy.

16. Q: Is differential GPS allowed?

A: Your proposal should specify how you would meet those requirements.

17. Q: How far apart can the small unit team members be separated?

A: Part of the motivation that small unit tactical units moving in an urban terrain be able conduct non-line-of-sight (NLOS), distributed operations. The CONOPS are going to evolve as we work with the Services, so we don't have a specific number for typical separation distances. Keep in mind that we are focused on small units in urban operations.

18. Q: Do you expect a binocular or monocular HMD, helmet or head-mounted?

A: That's up to you how you address this. The see-through system could be either binocular or monocular; we did not specify that in the BAA. Regarding this idea of natural vision, minimally the see-through display needs to inject icons and information in one eye. As far as the iconic information, we're not requiring you to geo-register two eyes.

19. Q: The Leader marks an object, for example, a door he sees, but that door is occluded in every other soldier's view. How will this icon appear and how do we know that it is hidden?

A: We are emphasizing some degree of line-of-sight to that object. Hopefully we will see in your proposals unique approaches about how to represent this to deal with partial occlusion as well as complete occlusion hidden behind wall, in the next room, behind the corner.

20. Q: Is there any consideration for integrating small-scale UAV's or robotic vehicles that are becoming more and more utilized to see around walls?

A: Yes. In general DARPA is interested in pursuing that whole area with opportunities for networking off board sensors, whether airborne, ground, static, or networked sensors that are already there. That's an expanding area that we are eager to have an ULTRA-Vis system connectivity to outside sources of information. It may not be visual, it may not be acoustic, but it comes back in some iconic way. Notice in the notional architecture of ULTRA-Vis system (Figure 2 in the BAA) that other sources of information input are indicated.

21. Q: Do you anticipate enabling the squad members to at least convey situation awareness information but certainly not commands?

A: I would refer you to our example where we used "Fire Team 3 cover the door!" The fire team leader responds with: "We see your mark, Sarge". That information came back to the Leader: it's a two way flow of information. We're interested in seeing an evolution of understanding of voice communications and situations that can develop with ULTRA-Vis being smarter in terms of how best to convey the information. So it's not just talking on the radio; it involves a more intelligent oversight and exploitation of that information. So the squad members could respond in ways that ULTRA-Vis interprets and presents it to other squad members or back to the squad leader.

22. Q: The ULTRA-Vis system is interpreting the users own gestures and commands but does the ULTRA-Vis system need to be able to allow the user to look at another team member and then interpret his hand signals as well?

A: We have not described the ULTRA-Vis capabilities that way in the basic CONOPS. We're focused on leader originated iconic command and control at this point.

23. Q: You have six different metrics in Phase 1, do all six have to be met before you go to the next Phase?

A: Yes, all metrics in Phase 1 need to be met or exceeded and that's a challenge that we certainly want you to address in the proposal.

24. Q: Would networked databases include maps and 3D models of the area?

A: Yes, it could. However, we're not keying on real time video transmissions and seeing images (picture-in-picture) necessarily. We'd like to know how you would address taking advantage of existing real time 3D databases perhaps being built by UAVs or other sensors in real time and can it provide some visual representation that's useful to a tactical leader. That's certainly what we're trying to show with the ULTRA-Vis concept.

25. Q: Is there any information on the seedlings that you could tell us how the seedlings performed and how they were evaluated.

A: That should be available soon. We'll be posting anything (reports,etc) that we're allowed to distribute at http://www.darpa.mil/ipto/solicit/solicit_open.asp under the ULTRA-Vis BAA (08-36).